WE CLAIM:

1. A cargo carrying case for rooftop mounting on a motor vehicle having a pair of crossbars, comprising

a box having a floor,

at least one clamp device mounted under the floor of the box, the clamp device having an open position configured for receiving a crossbar, and a closed position configured for firmly grasping the crossbar, and

at least one lever structure mounted inside the box, the lever structure being moveable between a first position and a second position, the lever structure being connected to the clamp device so that movement of the lever structure from the first position to the second position causes the clamp device to move from the open position to the closed position, thereby securing the box on the crossbar.

2. The cargo carrying case of claim 1, wherein the lever structure has a cam portion.

3. The cargo carrying case of claim 1, wherein the lever structure has an over-center action between the open position and closed position.

4. The cargo carrying case of claim 1, wherein the clamp device and the lever structure are mounted opposite from each other on opposing sides of the floor of the box.

5. The cargo carrying case of claim 1, wherein the clamp device includes a jaw structure having a stationary upper portion and a pivoting bottom portion that moves toward the upper portion when the lever structure is moved from the first position to the second position.

6. The cargo carrying case of claim 5, wherein the bottom portion has a concave inner surface configured to at least partially encompass the crossbar.

7. The cargo carrying case of claim 1, further comprising at least a second clamp device mounted outside the box, and a second lever structure mounted inside the box for operating the clamp device between open and closed positions.

8. The cargo carrying case of claim 1, further comprising at least three additional clamp devices mounted inside the box, each clamp device having a corresponding lever structure mounted inside the box for operating the clamp device between open and closed positions.

9. The cargo carrying case of claim 8, wherein two of the clamp devices are positioned for securing the box on a front crossbar, and the other two clamp devices are positioned for securing the box on a rear crossbar.

10. A cargo carrying case for rooftop mounting on a motor vehicle having a crossbar, comprising

a box having a floor, and

at least one clamp device comprising

a jaw device outside the box for clamping the crossbar against the floor of the box, the jaw device being pivotable about a first axis parallel to the crossbar between open and closed positions, so that when the jaw device is in the open position the crossbar can be received or removed from the clamp, and when the jaw device is in the closed position the crossbar is prevented from entering or exiting the clamp, and

a cam lever within the box, the cam lever being connected to the jaw device through an opening in the floor so that movement of the cam lever around a second axis inside the box causes movement of the jaw device between open and closed positions.

11. The cargo carrying case of claim 10, wherein the opening in the floor is a slot perpendicular to the crossbar, so that, when the clamp device is in the open position, the clamp device can be moved in a direction perpendicular to the crossbar.

12. The cargo carrying case of claim 11, wherein the clamp device further comprises a stationary jaw device component.

13. The cargo carrying case of claim 12, wherein the clamp device further comprises a fastener passing through the slot to the stationary jaw device component, so that when the fastener is tightened the stationary jaw device component prevents motion of the clamp device in the slot.

14. The cargo carrying case of claim 10, wherein the first and second axes are parallel when the clamp device is in the closed position.

15. The cargo carrying case of claim 10, wherein the carrying case comprises a plurality of clamp devices.

16. The cargo carrying case of claim 15, wherein two or more clamp devices are arranged laterally so as to clamp the same crossbar.

17. The cargo carrying case of claim 16, wherein the two or more clamp devices are ganged for easier and/or simultaneous opening and closing of the clamp devices.

18. The cargo carrying case of claim 10, wherein the first and second axes are non-parallel when the clamp device is in the closed position.

19. The cargo carrying case of claim 18, wherein the first and second axes are perpendicular when the clamp device is in the closed position.

20. The cargo carrying case of claim 19, wherein the carrying case comprises a plurality of clamp devices, and wherein two or more clamp devices are arranged so as to clamp different crossbars.

21. The cargo carrying case of claim 20, wherein the two or more clamp devices are ganged.

22. The cargo carrying case of claim 17 or the cargo carrying case of claim 21, wherein all of the clamp devices are ganged.

23. The cargo carrying case of claim 10, wherein the jaw device is elongate, with an initial portion of the jaw device angled so as to guide the crossbar into the jaw device, and with a concave inner surface that contacts the crossbar and is configured for gripping, wherein the concave inner surface has a cushion pad near the first axis.

24. The cargo carrying case of claim 23, wherein the clamp device further comprises a stationary jaw device component.

25. The cargo carrying case of claim 24, wherein the stationary jaw device component has side tabs to prevent side-to-side or flexing motion of the pivotable jaw device when the clamp device is in the closed position.

26. The cargo carrying case of claim 10, wherein the clamp device is provided with a gross adjustment mechanism.

27. The cargo carrying case of claim 26, wherein the gross adjustment mechanism is a bolt with the threaded end of the bolt being received in an anchor pivot in the jaw device, the anchor pivot being set away from the first axis, and with the head end of the bolt being received in an oversized knob so as to make gross adjustment easier.

28. The cargo carrying case of claim 27, wherein the cam lever is shaped to provide clearance for the oversized knob when the cam lever is moved from the open to the closed position or vice versa.

29. The cargo carrying case of claim 10, wherein the cam lever includes finger tabs at the end of the cam lever farthest from the second axis for ease in moving the cam lever to the open position.

30. The cargo carrying case of claim 10, wherein the floor has a surface characteristic that complements the shape of the cam lever so that moving the cam lever to the closed position seats the cam lever and provides repeatable alignment.

31. The cargo carrying case of claim 30, wherein the floor close to the clamp device is shaped in the form of a ridge so that moving the cam lever to the closed position seats the cam lever against the ridge.

32. The cargo carrying case of claim 10, wherein the first axis includes curvature away from the anchor pivot so as to provide spring action during clamp device operation.